WHAT IS CLAIMED IS:

1. A piezoelectric electro-acoustic transducer comprising:

a substantially rectangular piezoelectric diaphragm that vibrates in a surface-flexural mode in the thickness direction of the diaphragm in response to application of an alternating signal between electrodes disposed thereon;

a casing having a support unit disposed in an internal periphery thereof for supporting four corners of the piezoelectric diaphragm;

a terminal fixed to the casing such that an internal connection portion of the terminal is exposed in the vicinity of the support unit;

a first elastic adhesive for holding the piezoelectric diaphragm to the casing and arranged between an external periphery of the piezoelectric diaphragm and the internal connection portion;

a conductive adhesive for electrically connecting an electrode of the piezoelectric diaphragm and the internal connection portion of the terminal and being arranged between the electrodes of the piezoelectric diaphragm and the internal connection portion of the terminal via the upper surface of the first elastic adhesive; and

a second elastic adhesive for sealing between the external periphery of the piezoelectric diaphragm and the internal periphery of the casing; wherein

a cradle is provided in the internal periphery of the casing and below the piezoelectric diaphragm in the vicinity of the first elastic adhesive to provide a gap for preventing a flow of the first elastic adhesive, the cradle is located at a position lower than the

support unit and between an upper surface of the cradle and a bottom surface of the piezoelectric diaphragm.

2. A transducer according to Claim 1, wherein the casing is provided with a groove disposed in the internal periphery for receiving the second elastic adhesive, and an anti-flowing wall is disposed at a position lower than a support unit within the internal periphery of the groove for restricting the second elastic adhesive from flowing toward the bottom wall of the casing.

3. A transducer according to Claim 1, wherein the first elastic adhesive has a Young's modulus of about 500×10^6 Pa or less after being cured and the second elastic adhesive has a Young's modulus of about 30×10^6 Pa or less after being cured.

4. A transducer according to Claim 1, wherein the first elastic adhesive is a urethane adhesive and the second elastic adhesive is a silicone adhesive.

5. A transducer according to Claim 1, wherein the gap between the upper surface of the cradle and the bottom surface of the piezoelectric diaphragm has a size which prevents a flow of the first elastic adhesive by a surface tension of the first elastic adhesive between the cradle and the bottom surface of the piezoelectric diaphragm.

6. A transducer according to Claim 2, wherein a clearance between the upper surface of the anti-flowing wall and the bottom surface of the piezoelectric diaphragm has a size which prevents a flow of the second elastic adhesive by a surface tension of the second

elastic adhesive between the anti-flowing wall and the bottom surface of the piezoelectric diaphragm.

7. A transducer according to Claim 1, wherein the piezoelectric diaphragm is a bimorph diaphragm including at least two piezoelectric ceramic layers, an internal electrode disposed between the at least two piezoelectric ceramic layers and principal plane electrodes provided on top and bottom surfaces of the at bimorph diaphragm.

8. A transducer according to Claim 7, wherein the principal plane electrodes have a length that is less than a length of the piezoelectric ceramic layers.

9. A transducer according to Claim 7, wherein the bimorph diaphragm includes end surface electrodes, said internal electrode being connected to one of said end surface electrodes, and said principal plane electrodes being connected to another of said end surface electrodes.

10. A transducer according to Claim 1, wherein said diaphragm includes protection films provided on top and bottom surfaces of the diaphragm.

11. A method for manufacturing a piezoelectric electro-acoustic transducer comprising the steps of:

preparing a substantially rectangular piezoelectric diaphragm that vibrates in a surface flexural mode in the thickness direction of the diaphragm in response to application of an alternating signal between electrodes disposed thereon;

preparing a casing having a support unit disposed in an internal periphery thereof for supporting four corners of the piezoelectric diaphragm, a cradle provided in the vicinity of the support unit and at a location that is lower than the support unit so as to prevent a flow of a first elastic adhesive, and a terminal fixed to the casing such that an internal connection portion of the terminal is exposed in the vicinity of the support unit;

holding the piezoelectric diaphragm disposed between the external periphery of the internal connection portion to the casing by applying the first elastic adhesive between the piezoelectric diaphragm and the internal connection portion so as to be cured;

electrically connecting electrodes of the piezoelectric diaphragm and the internal connection portion of the terminal by applying a conductive adhesive between an electrode of the piezoelectric diaphragm and the internal connection portion of the terminal via an upper surface of the first elastic adhesive so as to be cured; and

sealing the external periphery of the piezoelectric diaphragm and the internal periphery of the casing by applying a second elastic adhesive between an external periphery of the piezoelectric diaphragm and the internal periphery of the casing so as to be cured.

12. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 11, wherein the casing is provided with a groove disposed in the internal periphery for receiving the second elastic adhesive, and an anti-flowing wall is disposed at a position lower than a support unit within the internal periphery of the groove

for restricting the second elastic adhesive from flowing toward the bottom wall of the casing.

13. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 11, wherein the first elastic adhesive has a Young's modulus of about 500×10^6 Pa or less after being cured and the second elastic adhesive has a Young's modulus of about 30×10^6 Pa or less after being cured.

14. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 11, wherein the first elastic adhesive is a urethane adhesive and the second elastic adhesive is a silicone adhesive.

15. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 11, wherein the gap between the upper surface of the cradle and the bottom surface of the piezoelectric diaphragm has a size which prevents a flow of the first elastic adhesive by a surface tension of the first elastic adhesive between the cradle and the bottom surface of the piezoelectric diaphragm.

16. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 12, wherein a clearance between the upper surface of the anti-flowing wall and the bottom surface of the piezoelectric diaphragm has a size which prevents a flow of the second elastic adhesive by a surface tension of the second elastic adhesive between the anti-flowing wall and the bottom surface of the piezoelectric diaphragm.

17. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 11, wherein the piezoelectric diaphragm

is a bimorph diaphragm including at least two piezoelectric ceramic layers, an internal electrode disposed between the at least two piezoelectric ceramic layers and principal plane electrodes provided on top and bottom surfaces of the at bimorph diaphragm.

18. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 17, wherein the principal plane electrodes have a length that is less than a length of the piezoelectric ceramic layers.

19. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 17, wherein the bimorph diaphragm includes end surface electrodes, said internal electrode being connected to one of said end surface electrodes, and said principal plane electrodes being connected to another of said end surface electrodes.

20. A method for manufacturing a piezoelectric electro-acoustic transducer according to Claim 11, wherein said diaphragm includes protection films provided on top and bottom surfaces of the diaphragm.